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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,834	01/30/2006	Hisashi Narimatsu	GRT/159-89	5006

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EXAMINER	
RAGHU, GANAPATHIRAM	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/539,834	NARIMATSU ET AL.	
	Examiner	Art Unit	
	Ganapathirama Raghu	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-15 and 24-30* is/are pending in the application.

4a) Of the above claim(s) *13,15 and 24-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Application Status

In response to the Office Action mailed on 11/17/2006, applicants' filed a response and amendment received on 05/17/2007. Said amendment, canceled claims 1-12 and 16-23, amended claims 13-15 and added new claims 24-30. Thus claims 13-15 and 24-30 are pending in this application. Amended claims 13, 15 and new claims 24-29 are withdrawn as they are non-elected inventions and belong to newly added group of process/method claims, as the original election to restriction requirement was directed to a composition comprising polypeptide (Group IV, claims 13-16, letter dated 06/01/06).

Newly submitted claims 13, 15 and 24-29 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The inventions listed in claims 13, 15 and 24-29 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features. The technical features linking the inventions of claims 13, 15 and 24-29 does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art (see 102 rejections below).

37 CFR 1.475 (d) also states: If multiple products, processes of manufacture or uses are claimed, the first invention of the category first mentioned in the claims of the application and the first recited invention of each other categories related thereto will be considered as the main invention in the claims, see PCT Article 17(3)(a) 1.47(c).

37 CFR 1.475(e) further states; the determination whether a group of invention is so linked as to form a single inventive concept shall be without regard to whether the inventions are claimed in separate claims or as alternative within a single claim.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13, 15 and 24-29 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Therefore, amended claims 14 and 30, directed to a composition/polypeptide is now under consideration and for the above-cited reasons, the request for the inclusion of claims 13, 15 and 24-29 directed to a process of using the composition are not considered and the requirement is still deemed proper and is therefore made FINAL.

Objections and rejections not reiterated from previous action are hereby withdrawn.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). This application is a 371 PCT/JP03/17030 filed on 12/26/2003 and claims the priority date of Japanese application 2002-38075 filed on 12/27/2002. However, Examiner notes that the English translation for the Japanese application 2002-38075 is not provided.

Withdrawn-Claim Rejections: 35 USC § 112

Rejection of claim 16 under 35 U.S.C. 112, second paragraph, is withdrawn following cancellation of the claim.

Claim Rejections: 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Amended Claim 14 and claims 30 dependent therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. Claim 14 recites the phrase "...significant transferring activity", as the metes and bounds are not clear. It is not clear to the examiner, significant transferring activity as compared to what? and the metrics for comparison against a known standard. Furthermore the transferase activity as recited in amended claims 14 and 30 is not clear because as originally presented (before the amendment) the activity of the glycosyltransferase was defined as transferring N-acetyl-D-glucosamine from a donor substrate to an acceptor substrate through β1,3-linkage, whereas the amended claims do not explicitly state the transferase activity of the glycosyltransferase. Clarification is required.

Amended Claim 14 and claims 30 dependent therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 recites the phrase "...at or around neutral", as the metes and bounds are not clear. It is not clear to the examiner, what is the deviation in pH from the neutral value of pH 7 is encompassed? Clarification is required.

Maintained-Claim Rejections: 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Written description

Claims 14 and 30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 14 and 30 are directed to any isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. Claims 14 and 30 are rejected under this section 35 U.S.C. 112, because the claims are directed to a genus of polypeptides with no support in the specification for the structural details associated with the function i.e., an isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics having specific activity and biochemical characteristics. No description of identifying characteristics of all of the sequences of an isolated glycosylyltransferases from any source including variants, mutants and recombinants have been provided by the applicants in the specification. No information, beyond the characterization of the glycosylyltransferase polypeptide having specific activity and biochemical characteristics and comprising the amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 16 or SEQ ID NO: 17 has been provided by the applicants, which would indicate that they had possession of the claimed genus of the polypeptides i.e., any isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. Therefore, one skilled in the art cannot reasonably conclude that applicant had possession of the claimed invention at the time the instant application was filed.

The applicants' have traversed this rejection with the arguments, "The written description requirement does not require a complete disclosure of every species within a chemical genus... multiple representatives of the genus are not required if common structural features are recited..." The applicants' arguments have been considered, but found to be non-persuasive because claims as written recites the only identifying characteristic being the functional property with no structural limitations.

While the specification discloses the structure and characterization of the glycosylltransferase polypeptides having specific activity and biochemical characteristics and comprising the amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 16 or SEQ ID NO: 17, the specification is silent in regard to (1) the structures of all the polypeptides encompassed by the claims, (2) the critical structural elements of any variant, mutant or recombinant glycosylltransferase enzyme from any source.

The genus of polypeptides required in the claimed invention is extremely large and structurally variable genus. While the argument can be made that the recited genus of polypeptides is adequately described by the disclosure of the structure of the polypeptides of SEQ ID NO: 2, SEQ ID NO: 16 or SEQ ID NO: 17, since one could use structural homology to isolate other polypeptides having the claimed function, as taught by the art, even highly structurally homologous polypeptides do not necessarily share the same function and many functionally similar proteins will have little or no structural homology to disclosed proteins. For example, Witkowski et al., (Biochemistry 38:11643-11650, 1999), teaches that one conservative amino acid substitution transforms a β-ketoacyl synthase into a malonyl decarboxylase and completely eliminates β-ketoacyl synthase activity. Seffernick et al., (J. Bacteriol., 183(8):2405-2410, 2001), teaches that two naturally occurring Pseudomonas enzymes having 98% amino acid sequence identity catalyze two different reactions: deamination and dehalogenation, therefore having different function. Broun et al., (Science 282:1315-1317, 1998), teaches that as few as four amino acid substitutions can convert an oleate 12-desaturase into a hydrolase and as few as six amino acid substitutions can transform a hydrolase to a desaturase. Therefore, the claimed genera of polypeptides include proteins having widely variable structures, since minor structural

changes may result in changes affecting function and no additional information correlating structure with function has been provided.

Many structurally unrelated polypeptides are encompassed by these claims. The specification only discloses three species of the recited genus, which is insufficient to put one of ordinary skill in the art in possession of all attributes and features of all species within the required genus. Therefore, one skilled in the art cannot reasonably conclude that the applicant had possession of the claimed invention at the time the instant application was filed.

Applicants are referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Enablement

Claims 14 and 30 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics and comprising the amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 16 or SEQ ID NO: 17, does not reasonably provide enablement for any isolated any isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with the claims.

Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F.2d 731, 8 USPQ 2nd 1400 (Fed. Cir. 1988)) as follows: (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3)

the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claim(s).

Claims 14 and 30 are so broad as to encompass for any isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. The scope of the claims are not commensurate with the enablement provided by the disclosure with regard to the extremely large number of polypeptides and encoding polynucleotides broadly encompassed by the claims. Since the amino acid sequence of a protein encoded by a polynucleotide determines its structural and functional properties, predictability of which changes can be tolerated in a protein's amino acid sequence and obtain the desired activity requires knowledge and guidance with regard to which amino acids in the protein's sequence and the respective codons in its polynucleotide, if any, are tolerant of modification and which are conserved (i.e. expectedly intolerant to modification), and detailed knowledge of the ways in which the encoded proteins' structure relates to its function. However, in this case the disclosure is limited to an isolated an isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics and comprising the amino acid sequence of SEQ ID NO: 2, SEQ ID NO: 16 or SEQ ID NO: 17, but provides no guidance with regard to the making of variants and mutants or with regard to other uses. In view of the great breadth of the claims, amount of experimentation required to make the claimed polypeptides and encoding polynucleotides, the lack of guidance, working examples, and unpredictability of the art in predicting function from a polypeptide primary structure (e.g., see Ngo et al. in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al. (ed.), Birkhauser, Boston,

MA, pp. 433 and 492-495), the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the polypeptides encompassed by this claim.

While enzyme isolation techniques, recombinant and mutagenesis techniques are known, and it is not routine in the art to screen for multiple substitutions or multiple modifications as encompassed by the instant claim, the specific amino acid positions within a protein's sequence where amino acid modifications can be made with a reasonable expectation of success in obtaining the desired activity/utility are limited in any protein and the result of such modifications is unpredictable. In addition, one skilled in the art would expect any tolerance to modification for a given protein to diminish with each further and additional modification, e.g. multiple substitutions or deletions.

The specification does not support the broad scope of the claims which encompass all modifications to any isolated glycosylyltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants, because the specification does not establish: (A) regions of the protein/polynucleotide structure which may be modified without affecting the activity of encoded glycosylyltransferase polypeptide having specific activity and biochemical characteristics; (B) the general tolerance of the polypeptide and the polynucleotide encoding glycosylyltransferase polypeptide having specific activity and biochemical characteristics to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any amino acid residue or the respective codon in the polynucleotide with an expectation of obtaining the desired biological function; and (D)

the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claim broadly including polynucleotides with an enormous number of modifications. The scope of the claim must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of glycosylyltransferase and biochemical/biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Applicants' have traversed this rejection and the claimed invention is enabled and any person skilled in the art can make and use the invention without undue experimentation. The applicants' arguments have been considered but found to be non-persuasive for the following reasons. Claims as written when given the broadest interpretation, the scope and breadth of the claims reads on any glycosyltransferase with an enormous number of modifications including mutants, variants and recombinants from any source and therefore experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue.

New-Claim Rejections 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Withers et al., (US Patent No.: 6,204,029 B1, publication date March 20, 2001) when given the broadest interpretation. Claims 14 and 30 are directed to any isolated glycosylltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. Withers et al., disclose polypeptides having glycosyltransferase activity with acceptor substrates such as monosaccharide and oligosaccharide (column 4, lines 56-67) with transferring activity for groups such as Galβ1-4GlcNAc (column 5, line 1), reaction conditions of pH 7.5 and preferably pH 7.2 to 7.8 and enzyme cofactors such as $Mn2^{+}$ (column 8, lines 52-67 and column 9, lines 1-3). Therefore, Withers et al., anticipate claims 14 and 30 as written.

Maintained-Claim Rejections 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Conklin et al., (US Patent No.: 6,416,988, publication date July 02, 2002). Claims 14 and 30 are directed to any isolated glycosylltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. Conklin et al., (*supra*) teach the isolation of a polypeptide annotated as β1,3-N-acetyl-D-galactosyltransferase a polypeptide belonging to β1,3-glucosaminyltransferase family (SEQ ID NO: 2) that has 99.8% homology to SEQ ID NO: 2 and SEQ ID NO: 16 and 99.7% homology to SEQ ID NO: 17 and

having β1,3-N-acetyl-D-glucosaminyltransferase of the instant application (see sequence alignment provided). The reference also teaches encoding polynucleotides, vectors, host cells and method of making the polypeptide. Therefore, Conklin et al., anticipate claims 14 and 30 as written.

Claims 14 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Daffo et al., (WO 02/079449, publication date 10/11/2002 also claiming the priority of US Provisional Application No.: 60/279,619 filed on 03/28/2001). Claims 14 and 30 are directed to Claims 14 and 30 are directed to any isolated glycosylltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. Daffo et al., (*supra*) teach the isolation of a polypeptide annotated as β1,3-N-acetyl-D-galactosyltransferase (SEQ ID NO: 568) belonging to β1,3-glucosaminyltransferase family that has 100% homology to SEQ ID NO: 17 and having β1,3-N-acetyl-D-glucosaminyltransferase of the instant application (see sequence alignment provided). The reference also teaches encoding polynucleotides, vectors, host cells and method of making the polypeptide. Therefore, Daffo et al., anticipate claims 14 and 30 as written.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 14 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Gendreau et al., (WO 2004/066948 A2, publication date 08/12/2004, claiming priority of US Provisional Application No.: 60/443,484 filed on 01/29/03). Claims 14 and 30 are directed to any isolated glycosylltransferase polypeptide having specific activity and biochemical characteristics from any source including variants, mutants and recombinants. Gendreau et al., (*supra*) teach the isolation of a polypeptide annotated as β1,3-N-acetyl-D-galactosyltransferase (SEQ ID NO: 27) belonging to β1,3-glucosaminyltransferase family that has 100% homology to SEQ ID NO: 17 and having β1,3-N-acetyl-D-glucosaminyltransferase of the instant application (see sequence alignment provided). The reference also teaches encoding polynucleotides, vectors, host cells and method of making the polypeptide. Therefore, Gendreau et al., anticipate claims 14 and 30 as written.

This rejection is made on the basis that no English translation for the Japanese application 2002-38075 has been provided and for examination purposes the priority date granted to the instant application is the priority date of 371 PCT/JP03/17030 filed on 12/26/2003.

Applicants, have traversed the rejection with the arguments the proteins disclosed by Conklin et al., Daffo et al., and Gendreau et al., were identified as galactosyltransferases, whereas the protein of Applicants' claimed invention relates to N-acetyl-glucosaminyltransferase. Applicants' arguments have been considered, however they are found to be non-persuasive, although said references are silent regarding said polypeptides having N-acetyl-glucosaminyltransferase activity, examiner takes the position that by virtue of high sequence homology of reference polypeptides to the polypeptides of the instant invention, said reference polypeptides inherently have the property of N-acetyl-glucosaminyltransferase activity.

MPEP Chapter 2100-Patentability, clearly states that "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ430, 433 (CCPA 1977). >In In re Crish, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004), the court held that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court stated that "just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel." Id.< See also MPEP § 2112.01 with regard to inherency and product-by-process claims and MPEP § 2141.02 with regard to inherency and rejections under 35 U.S.C. 103".

Summary of Pending Issues

The following is a summary of issues pending in the instant application.

1) Claims 13, 15 and new claims 24-29 are withdrawn as they are non-elected inventions and belong to newly added group of process/method claims.

2) Claim 14 and claims 30 dependent therefrom are rejected under 35 U.S.C. 112, second paragraph.

3) Claims 14 and 30 are rejected under 35 U.S.C. 112, first paragraph, for written description enablement.

4) Claims 14 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Withers et al., (US Patent No.: 6,204,029 B1, publication date March 20, 2001) Conklin et al., (US Patent No.: 6,416,988, publication date July 02, 2002), Daffo et al., (WO 02/079449, publication date 10/11/2002 also claiming the priority of US Provisional Application No.: 60/279,619 filed on 03/28/2001) and under 35 U.S.C. 102(e) by Gendreau et al., (WO 2004/066948 A2, publication date 08/12/2004, claiming priority of US Provisional Application No.: 60/443,484 filed on 01/29/03).

Conclusion

None of the claims are allowable. Claims 14 and 30 are rejected for the reasons identified in the Rejections and Summary sections of this Office Action. Applicants must respond to the objections/rejections in each of the sections in this Office Action to be fully responsive for prosecution.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Final Comments

To insure that each document is properly filed in the electronic file wrapper, it is requested that each of amendments to the specification, amendments to the claims, Applicants' remarks, requests for extension of time, and any other distinct papers be submitted on separate pages.

It is also requested that Applicants identify support, within the original application, for any amendments to the claims and specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathirama Raghu whose telephone number is 571-272-4533. The examiner can normally be reached between 8 am-4:30 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications. Any inquiry of a general nature or relating to the status of the application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ganapathirama Raghu, Ph.D.
Patent Examiner
Art Unit 1652
July 11, 2007.

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